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UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH ADMINISTRATION
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
Division of Forest Insect Investigations

JEFFREY PINE BEETLE
BADGER MOUNTAIN AREA, LASSEN NATIONAL PARK AND LASSEN NATIONAL FOREST
FALL, 1953
APPRAISAL SURVEY

An extensive infestation of the Jeffrey pine beetle in old-growth Jeffrey pine has developed on approximately 6,000 acres in Shasta County. The boundary of the outbreak is shown on the appended map. Approximately one-half of the affected acreage and number of dead trees lies within Lassen Volcanic National Park while the remainder is located on the Lassen National Forest. The private land in the area is not infested.

Surveys of the Infestation

The infestation was first detected from West Prospect Peak Lookout on September 1, 1953 during an examination of the area by J. S. Woolfolk and O. E. Kirkpatrick from Hat Creek Ranger Station, and M. M. Furniss from the Forest Insect Laboratory. From observations made that day it was determined that an appraisal should be made in order to provide the necessary information about acreage and volume of dead trees, which would be needed in undertaking control action.

On September 10 and 11 a 2-1/2 percent cruise of the infestation was made by Furniss and G. L. Downing of the Insect Laboratory and Herbert Kaufner and James Denny of the California State Division of Forestry. The results of this cruise are given in the following table:

Estimated 1/ Volume and Number of Infested and Abandoned Trees by Ownership, Badger Mountain Infestation, Shasta County, California. 1953.

	Lassen National Forest (3,200 ac)	Lassen Volcanic National Park (3,200 ac)	Total (6,400 ac)
Volume of infested trees	425,600	425,600	851,200
Number of infested trees	201	201	403
Volume of abandoned trees	448,000	448,000	896,000
Number of abandoned trees	262	262	525
Total volume	873,600	873,600	1,747,200
Total number	464	464	928

1/ (Sample error: 44 percent).

During the course of the field work it was learned that the area was extremely variable as to forest type and that the infestation seemed concentrated in some areas more than in others. It is believed that these factors were responsible for the high sampling error obtained.

As a further check on the severity of the infestation, an airplane flight was made by Downing, Woolfolk and Furniss on September 15. The currently infested trees could not be counted because their foliage was still green. However, 350 faded trees, killed by the 1952 generation of beetles, were counted. Experience has indicated that similar counts of faded trees are always conservative, and it was concluded that the appraisal figures of trees killed in 1952 could be relied upon for purposes of planning control.

On September 24 a final effort was made to learn the necessary facts about the infestation during a reconnaissance of the Park boundary by R. R. Maberry of Lassen National Park and Furniss. The purpose of this inspection was to establish the proportion of dead trees on Park land and to determine the proportion between 1952-killed trees (faded) and 1953-infested trees (green). The reconnaissance showed that the number of infested trees was about evenly distributed between National Park and National Forest ownership. It also indicated that the 1953-infested trees were fewer in number than the faded trees killed the year before.

Recommendations[2/]

The extent and severity of the outbreak is such that some form of control should be undertaken immediately to alleviate further heavy losses. The presence of two land ownerships within the infestation with different land management objectives complicates the use of uniform control practices. The infestation of National Forest land involved lends itself to control by logging of infested trees. On the other hand, similar methods on National Park land would require the building of roads which the National Park Service does not consider desirable in the area. Because of the different uses of the land involved, control methods must therefore differ as to method. However, the objective of the different methods, to suppress the infestation by reducing beetle populations, is the same in each case.

The course of action needed is as follows:

2/ Dr. R. C. Hall of the Forest Insect Laboratory presented most of these recommendations on October 2 during a meeting in Susanville with U. S. Forest Service and National Park Service officials to discuss the infestation. Those in attendance from the Lassen National Forest were: Supervisor V. A. Parker, Timber Staff Officer E. L. Turner, Ranger J. S. Woolfolk and Project Sales Officer O. E. Kirkpatrick. Representing Lassen Volcanic National Park were: Chief Ranger Leonard Voltz and District Ranger William Hollomon.

1. Control of the Jeffrey pine beetle should be undertaken on 6,000 acres as shown on the accompanying map.

2. Spotting by Park and National Forest crews should begin immediately.

3. On National Forest land, infested trees should be salvaged where possible. Unmerchantable trees and infested portions not removed by logging should be treated by one of the alternative methods listed below.

4. Trees within the National Park which are infested with the Jeffrey pine beetle should be felled and treated. Treatment may include any of the following methods: fell-peel-burn; spraying with 5 percent solution of ethylene dibromide in fuel oil; or fell-peel and expose to physical and biotic agents while brood is not beyond the pupal stage. Where the last method is employed, treatment should be completed before the overwintering broods reach the adult stage.

5. Control should be accomplished prior to July 1, 1954. Logging should begin in the fall. Spraying or burning should be done during suitable weather in the spring.

Forest Insect Laboratory
Berkeley, California
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BADGER MTN. INFESTATION

LASSEN NATIONAL PARK
&
LASSEN NATIONAL FOREST